Volume 567 August 4, 1989

VIRAL ONCOGENESIS AND CELL DIFFERENTIATION: THE CONTRIBUTIONS OF CHARLOTTE FRIEND ^a

Editors and Conference Organizers
LEILA DIAMOND AND SANDRA R. WOLMAN

CONTENTS		
Charlotte Friend Frontisp	piece	
Introductory Remarks		
Charlotte Friend, Ph.D., 1921-1987: A Scientist's Life. By LEILA DIAMOND and SANDRA R. WOLMAN	1	
Part I. Retroviruses		
Genetic Basis of Disease Specificity of Nondefective Friend Murine Leukemia Virus. By NANCY HOPKINS	14	
Genetic Resistance to Friend Virus. By ARTHUR AXELRAD	26	
Genetics of Endogenous Murine Leukemia Viruses. By John M. Coffin, Jonathan P. Stoye, and Wayne N. Frankel	39	
Part II. Human Lymphotropic Viruses		
Retroviral Pathogenesis: Unexpectedly High Levels of HIV-1 RNA and Protein Synthesis in a Cytocidal Infection. By H. L. ROBINSON and M. SOMASUNDARAN	50	
Pathogenesis of Human Immunodeficiency Virus Infection. By JAY A. LEVY.	58	
Immunobiology of the HIV Envelope. By DANI P. BOLOGNESI	69	
Human Retroviruses: Their Role in Neoplasia and Immunodeficiency. By ROBERT C. GALLO and LATA S.		
Nerurkar	82	

^aThis volume contains papers from a conference entitled Viral Oncogenesis and Cell Differentiation: The Contributions of Charlotte Friend, which was held by the New York Academy of Sciences on September 29-October 1, 1988, in New York, New York.

Part III. Oncogenes

Expression and Activation of the K-fgf Oncogene. By CLAUDIO BASILICO, KAREN M. NEWMAN, ANNA MARIA CURATOLA, DANIELA TALARICO, ALKA MANSUKHANI, ANNA VELCICH, and PASQUALE DELLI-BOVI	95
SV40 T-Antigen as a Dual Oncogene: Structure and Function of the Plasma Membrane-Associated Population. By JANET S. BUTEL, DONALD L. JARVIS, and STEVE A. MAXWELL	104
Pathways in Which Growth Factors and Oncogenes Interact in Epithelial Cell Mitogenic Signal Transduction. By STUART A. AARONSON, JOSEPH P. FALCO, WILLIAM G. TAYLOR, ALEX C. CECH, CINZIA MARCHESE, PAUL W. FINCH, JEFFREY RUBIN, BERNARD E. WEISSMAN, and PIER PAOLO DI FIORE	122
ROBIN, DERNARD E. WEISSMAN, AIR FIER FAOLO DI FIORE	122
Part IV. Hematopoiesis: Normal and Abnormal	
Cytogenetic and Molecular Analysis of Therapy-Related Leukemia. By Janet D. Rowley and Michelle M. Le Beau	130
The Molecular Control of Normal and Leukemic Hematopoiesis: Myeloid Cells as a Model System. By LEO SACHS	141
Alteration of the Program of Terminal Differentiation Caused by Oncogenes in the Hemopoietic Progenitor Cell Line 32D Cl3 (G). By GIOVANNI ROVERA, BRENT KREIDER, NEELAM SHIRSAT, DONATELLA VENTURELLI, GIUSEPPE NASO, and FULVIO MAVILIO	. 154
Friend Virus-Induced Erythroleukemia: A Multistage Malignancy.	. 154
By YAACOV BEN DAVID and ALAN BERNSTEIN	. 165
Interactions between Hematopoietic Growth Factors in Normal and Leukemic Stem Cell Differentiation. By MALCOLM A. S.	
Moore	. 171
Part V. Growth and Differentiation of Normal and Malignant	Cells
Programmed Cell Death in the Blastocyst. By G. BARRY PIERCE, ROBERT A. GRAMZINSKI, and RALPH E. PARCHMENT	. 182
Proto-oncogenes and Differentiation versus Transformation of Striated Muscle Cells. By J. HAREL, M. P. LEIBOVITCH, M. GUILLIER, A. G. BORYCKI, and S. A. LEIBOVITCH	. 187
Sperm Maturation: Membrane Domain Boundaries. By DANIEL S. FRIEND.	. 208
Shope Fibroma: A Model System to Study Tumorigenesis by Poxviruses. By B. GT Pogo, K. M. Obom, J. Haddad, and	222
J. G. HOLLAND	. 222
HEPPNER V.C CHONG and A M FULTON	234

Part VI. Molecular and Genetic Control of Cell Proliferation	
Organization and Expression of Homeobox Genes in Mouse and Man. By CLAUDIA KAPPEN, KLAUS SCHUGHART, and FRANK H. RUDDLE	243
Interferons and the Differentiation of Friend Cells. By G. B. Rossi, R. Albertini, A. Battistini, E. M. Coccia, G. Romeo, G. Fiorucci, G. Marziali, U. Testa, and E. Affabris	253
Cancer Genes by Illegitimate Recombination. By PETER H. DUESBERG, REN-PING ZHOU, and DAVID GOODRICH	259
Closing Remarks	
Leukemia, Viruses, Development, and the Real World. By Frank LILLY	274
Poster Papers	
Development of a Retrovirus Packaging System to Study Fv-1 Restriction. By LAWRENCE R. BOONE, CYNTHIA L. INNES, AND PAUL L. GLOVER	278
Differential Expression of Fv-1 in Fibroblasts Derived from Embryonal Carcinoma Cells. By Catherine K. Heitman, Cynthia L. Innes, Anton M. Jetten, and Lawrence R. Boone.	280
Molecular and Biological Characterization of FLV Produced by Different Cell Lines. By M. E. JOESTEN, M. E. ROYSTON, AND B. GT. POGO	282
HIV Infection of Neural Cells. By J. M. HAROUSE, M. LAUGHLIN, J. A. HOXIE, J. Q. TROJANOWSKI, and F. GONZALEZ-	
SCARANO	285
Enhancer Binding Proteins. By Tse-Hua Tan and Robert G. ROEDER	288
The HTLV-I Tax-Inducible Enhancer Is Responsive to Various Inducing Agents. By TSE-HUA TAN, RAN JIA, and ROBERT G. ROEDER.	291
Rat Embryo Fibroblasts Transformed by p53 Plus ras Possess Tumor-specific Transplantation Activity. By Alan B. Frey and Arnold J. Levine	295
Glucocorticoids Alter Transcription from the Mouse Ha-ras Promoter Region in a Transient Gene Expression Assay. By JILL C. PELLING, JUDY STRAWHECKER, NATALIE BETZ, and	
Renee Neades	299

Embryo Cells Doubly Transformed by Type 5 Adenovirus and the Ha-ras Oncogene. By GREGORY J. DUIGOU, LEE E. BABISS, and PAUL B. FISHER.	302
Malignant Transformation of Normal Human Keratinocytes by SV40 Virus. By JOHN J. WILLE	307
Friend Erythroleukemia Cell Differentiation: Synergistic Action of Inducers. By Lalit C. Garg, Aparna Dixit, Jay C. Brown, and Rajagopalan Sridhar	311
Benzyl Alcohol Reduces the Accumulation of Hemoglobin Minor Compared to Hemoglobin Major in Mouse Erythroleukemia Cells Induced to Differentiate by Dimethyl Sulfoxide or Hexamethylene Bisacetamide. By W. SCHER, B. M. SCHER, N. HELLINGER, and S. WAXMAN.	314
WSU-BL: A New Burkitt's Lymphoma Cell Line with Capacity to Differentiate In Vitro. By AYAD AL-KATIB, RAMZI M. MOHAMMAD, and ANWAR N. MOHAMED	317
One Inducer of Human Promyelocytic Leukemia (HL-60) Cell Differentiation Enhances the Effect of a Second Inducer. By LALIT C. GARG, APARNA DIXIT, and RAJAGOPALAN SRIDHAR.	320
Expression of Retinoic Acid Receptor-α-Related mRNA in HL-60 Sublines and Somatic Cell Hybrids. By FANA SAID, ISAGANI PUA, and ROBERT GALLAGHER.	323
Activation of the Fructose 1,6-Bisphosphatase Gene during Monocytic Differentiation and Maturation. By DAVID H. SOLOMON, MARIE-CECILE RAYNAL, and YVON E. CAYRE	326
Induction of Differentiation in Human Melanoma Cells by the Combination of Different Classes of Interferons or Interferon Plus Mezerein. By Mohammad Almas Ahmed, Ludovico Guarini, Soldano Ferrone, and Paul B. Fisher	328
Single-Cell Analysis of DNase I-Sensitive Sites during Neoplastic and Normal Cell Differentiation within Human Bone Marrow. By JOHN H. FRENSTER	334
Changes in Chromatin Structure Temporally Relate to Tumorigenicity and Inducibility of Friend Cell Types. By KATHLEEN E. LEONARDSON and STUART B. LEVY	337
Methylation of Repetitive DNA Sequences and Differentiation of Friend Erythroleukemia Cells. By NATALIE SCHNEIDERMAN, ZEE-FEN CHANG, and JUDITH K. CHRISTMAN	340
Modification of the Effects of Ionizing Radiation by Differentiation- Induction. By John T. Leith and Arvin S. Glicksman	342
Anti-viral Therapy Induces T Cells Which Protect against Viral Challenge. By R. M. RUPRECHT, S. MULLANEY, M. GAMA SOSA, R. HOM, and R. FINBERG	344

Studies on the DNA Ligase of Mouse Erythroleukemia Cells: Therapeutic Implications. By BARBARA M. SCHER, WILLIAM SCHER, and SAMUEL WAXMAN	347
Keynote Address The Friend Legacy: From Mouse to Man. By FRED RAPP	349
Index of Contributors	355

Financial assistance was received from:

- AMERICAN CANCER SOCIETY
- BETHESDA RESEARCH LABORATORIES, LIFE TECHNOLOGIES, INC.
- BRISTOL-MYERS COMPANY/PHARMACEUTICAL RESEARCH AND DEVELOPMENT DIVISION
- BURROUGHS WELLCOME COMPANY
- CENTOCOR
- HOFFMANN-LA ROCHE/CELL BIOLOGY
- HOFFMANN-LA ROCHE/CLINICAL INVESTIGATION
- MERCK SHARP & DOHME RESEARCH LABORATORIES
- NATIONAL CANCER INSTITUTE/NIH
- PFIZER CENTRAL RESEARCH
- SEARLE RESEARCH AND DEVELOPMENT
- SMITH KLINE & FRENCH LABORATORIES
- THE MOUNT SINAI MEDICAL CENTER

The New York Academy of Sciences believes it has a responsibility to provide an open forum for discussion of scientific questions. The positions taken by the participants in the reported conferences are their own and not necessarily those of the Academy. The Academy has no intent to influence legislation by providing such forums.



